
Description

The Message Center allows an incoming trunk or internal call to be automatically routed to a Message Center if it is not answered at the original destination. The main functions of the Message Center are as follows:

- receive and take messages for calls forwarded to the Message Center
- convey messages to called telephones or consoles on request
- activate and deactivate Message Waiting Indication at users' telephones

Automatic and manual diagnostics are provided to clear all active Message Waiting Indications when required. Three types of Message Center operations are offered:

- Automatic Call Distribution (ACD)
- SL-1 and Meridian digital telephone
- attendant

Depending on the packages equipped, you can have any Message Center option or combination of Message Center.

Reference documentation

Please refer to the following Northern Telecom Publication for more information:

- *X11 Software input/output guide*

Incoming calls to the Message Center

Calls coming into a Message Center can be direct or indirect.

Direct message calls

The Message Center can be accessed by a direct message call, which can take any of the following forms:

- An attendant extends a call to the message center.
- A 500/2500 telephone dials the Message Center DN.
- An SL-1 or Meridian digital telephone accesses the Message Center.

Indirect message calls

A call can be routed to the Message Center if it is not answered at the original terminating telephone. This indirect call can take any of the following forms:

- A non-direct inward dial call encounters a no-answer condition so that Call Forward No Answer (CFNA) is invoked, routing it to the Message Center.
- A direct inward dial (DID) call encounters CFNA or Call Forward Busy (CFB) and is routed to the Message Center.
- The Message Center Directory Number (DN) can be specified as a Hunt or Call Forward DN for any telephone.

Operation

A Message Center can be organized in one of three ways:

- Automatic Call Distribution (ACD)
- SL-1 and Meridian digital telephone
- attendant

Automatic Call Distribution (ACD) Message Center

A special aspect of ACD is defined for optional use with Message Center. Each telephone assigned to the ACD-type Message Center is equipped with an ACD in-calls key/lamp pair. One Message Indication and one Message Cancellation key/lamp pair must also be equipped if Message Waiting Indication and control are required. Calls redirected to the Message Center are queued in order of arrival and distributed to answering positions in the same way ACD calls are distributed.

If all assigned positions are in the Make Busy mode, redirected calls and message retrieval calls are forwarded to the night number specified for the Message Center ACD DN. This DN can be the attendant, another Message Center, or an outside number. Up to 240 Message Center ACD DNs can be assigned per customer.

ACD Agent Position Increase, X11 Release 12 and later software This software increases the number of ACD agent positions to 1200 for SL-1 NT and XT machines.

X11 Release 15 and greater supports up to 1200 positions on the system options 51, 61, and 71.

Before X11 Release 12, up to 240 agent positions are supported on the SL-1 VLE, XL, XN, and XT machines.

Before X11 Release 12, the SL-1 N, NT, and LE machines support 120 agent positions.

As many as 70 agent positions are supported on the SL-1 M, S, MS, and ST machines, and the system option 21.

If the appropriate ACD packages are equipped, an ACD Message Center can support a full complement of ACD features. See Automatic Call Distribution basic features description.

When an indirect message call is presented to a Message Center operator's telephone, the MSG IN-CALLS key flashes, and both the calling DN and called DN are displayed. If the call originated from a trunk, the route and member number of the trunk display instead of the calling DN.

To answer the call, press the MSG IN-CALLS key. You can now take a message or release as required.

If the caller wants to leave a message, take down the required information, then pass it on to the called party. Press the MSG INDIC key to notify the called party that they have a message waiting.

Press the RLS key to release the call. You rejoin the ACD queue when the Message Center call is released.

When a Message Center call comes in and the called DN displays, the MSG INDIC lamp at the operator's telephone reflects the status of the called telephone's Message Waiting lamp as follows. If Audible Message Waiting (AMW) is equipped in place of the lamp, interrupted dial tone indicates the called party's status.

- Steadily lit: If the operator's MSG INDIC lamp is steadily lit, the Message Waiting Indication at the called telephone is inactive.
- Fast flashing (60 ipm): If the operator's MSG INDIC lamp is fast flashing, then the Message Waiting Indication at the called telephone is active.
- Slow flashing (30 ipm): If the operator's MSG INDIC lamp is slow flashing, the Message Waiting lamp at the called telephone is disabled or not equipped. This state does not occur if the Message Waiting Indication is by interrupted dial tone.

Telephone Message Center

The telephone's Message Center has one or more display telephones sharing a DN designated as the Message Center DN. An incoming call to the Message Center is presented to all Message Center telephones at once. The first operator to press the flashing MC DN key is connected to the call. If all operators are busy, incoming message calls get the treatment as specified.

When you press the flashing MC DN key, you are immediately connected to the caller. The display shows the originating DN (or trunk route and member number) and terminating DN. If CPND is equipped, the names are displayed.

When a Message Center call comes in and the called DN displays, the MSG INDIC lamp at the operator's telephone reflects the status of the called telephone's Message Waiting lamp as follows. If Audible Message Waiting (AMW) is equipped in place of the lamp, interrupted dial tone indicates the called party's status.

- Steadily lit: If the operator's MSG INDIC lamp is steadily lit, the Message Waiting indication at the called telephone is inactive.
- Fast flashing (60 ipm): If the operator's MSG INDIC lamp is fast flashing, then the Message Waiting Indication at the called telephone is active.
- Slow flashing (30 ipm): If the operator's MSG INDIC lamp is slow flashing, the Message Waiting lamp at the called telephone is disabled or not equipped. This state does not occur if the Message Waiting Indication is by interrupted dial tone.

When an indirect message call is presented to a Message Center operator's telephone, the MSG IN-CALLS key flashes, and both the calling DN and called DN are displayed. If the call originated from a trunk, the route and member number of the trunk display instead of the calling DN.

To answer the call, press the MSG IN-CALLS key. You can now take a message or release as required.

If the caller wants to leave a message, take down the required information and pass it on to the called party. Press the MSG INDIC key to notify the called party that they have a message waiting.

Press the RLS key to release the call. You return to normal telephone operations until the next Message Center call appears.

All telephones have Message Waiting capability, and any SL-1 or Meridian digital telephone (except the M3000) can function as a Message Center. The DN used for message taking should be the prime DN if the Message Waiting lamp Indication and Cancellation are desired. Calls are redirected to the telephone-type Message Center using message forwarding. Since this is a normal DN, calls are not queued.

A telephone with Message Waiting may be equipped with a key/lamp pair that notifies you when a message is waiting. When this key is pressed, you are connected with the Message Center.

500/2500 telephones with Message Waiting Allowed Class of Service may be equipped with a neon lamp for visual indication. These telephones must dial-access the Message Center.

A telephone without a Message Waiting lamp, except the M2317, can be informed that a message is waiting by Audible Message Waiting (AMW) (Prime DN's and Single Appearance DN's only). A special Message Waiting tone is heard each time you go off hook until the Message Waiting Indication is canceled by the Message Center operator. Calls can be originated and received with the tone activated.

Each telephone with a Message Waiting Allowed Class of Service is assigned to a specific Message Center. Unanswered calls are automatically routed to that Message Center. There is no upper limit to the number of telephones that can be assigned to any Message Center.

Attendant Message Center

An attendant Message Center has up to 15 Attendant Consoles in a system handling messages, in addition to their normal functions as attendants. Incoming message calls can access an attendant Message Center in one of two ways: a phantom Message Center DN or normal attendant access.

Phantom Message Center DN This method requires the presence of the ACD package in the system. The ACD DN for this feature has no agents assigned to it. Any message calls coming into it are automatically transferred to the attendant and appear on a MSG CENTER Incoming Call Indicator (ICI) key. The Message Center DN established in this way is thus a phantom Message Center DN.

When a message call appears at an Attendant Console through a Message Center DN, the MSG CENTER ICI lamp flashes, and the display shows the originating DN (or trunk route and member number) and terminating DN. If Call Party Name Display (CPND) is equipped, the names are shown instead of the DN's.

When a Message Center call comes in and the called DN displays, the MSG INDIC lamp at the operator's telephone reflects the status of the called telephone's Message Waiting lamp as follows. If Audible Message Waiting (AMW) is equipped in place of the lamp, interrupted dial tone indicates the called party's status.

- Steadily lit: If the operator's MSG INDIC lamp is steadily lit, the Message Waiting Indication at the called telephone is inactive.
- Fast flashing (60 ipm): If the operator's MSG INDIC lamp is fast flashing, then the Message Waiting Indication at the called telephone is active.
- Slow flashing (30 ipm): If the operator's MSG INDIC lamp is slow flashing, the Message Waiting lamp at the called telephone is disabled or not equipped. This state does not occur if Message Waiting Indication is by interrupted dial tone.

When you press a free LPK key or the flashing MSG CENTER ICI key, you automatically connect to the incoming call. If the caller wants to leave a message, take down the required information and pass it on to the called party. Press the MSG INDIC key to notify the called party that they have a message waiting.

Press the RLS key to release the call. You return to normal telephone operations until the next Message Center call appears.

Normal attendant access If a phantom Message Center DN has not been established on an Attendant Console ICI key, the attendant must determine verbally that this is a message call. In this case, the MSG INDIC lamp does not show the state of the called party's Message Waiting Indication. After the call is released, the attendant can provide a Message Waiting Indication by directly accessing the called party's telephone.

Message retrieval calls

All telephones have Message Waiting capability, and any SL-1 or Meridian digital telephone (except the M3000) can function as a Message Center. The DN used for message taking should be the prime DN if Message Waiting lamp Indication and Cancellation are desired. Calls are redirected to the telephone-type Message Center using Message Forwarding. Since this is a normal DN, calls are not queued.

A telephone with Message Waiting may be equipped with a key/lamp pair that notifies you when a message is waiting. When this key is pressed, you are connected with the Message Center.

500/2500 telephones with Message Waiting Allowed Class of Service may be equipped with a neon lamp for visual indication. These telephones must Dial Access the Message Center.

A telephone without a Message Waiting lamp, except the M2317, can be informed that a message is waiting by Audible Message Waiting (AMW) (Prime DNs and Single Appearance DNs only). A special Message Waiting tone is heard each time you go off hook until the Message Waiting Indication is canceled by the Message Center operator. Calls can be originated and received with the tone activated.

Message indication at a called telephone can take the following forms:

SL-1 and Meridian digital telephones with a key/lamp pair The lamp associated with the MSG WAITING key indicates that a message is waiting at the Message Center.

500/2500 telephones with a Message Waiting lamp A Message Waiting lamp on the telephone indicates that a message is waiting at the Message Center.

Telephones Without a Message Waiting lamp As an option in X11 Release 2, Message Waiting Indication can be provided by AMW (a 120 ipm interrupted dial tone) instead of a Message Waiting lamp, or key/lamp pair when the user goes off hook at the telephone. A faulty Message Waiting lamp does not result in Message Waiting Indication by interrupted dial tone; in this case, it is up to the user to call the Message Center to see if there is a message. Telephones equipped with neither Message Waiting lamps nor AMW have no visual indication that a message is waiting. It is up to the user to call the Message Center to see if a message is waiting.

Regardless of whether message indication is by lamp or AMW, the user can still make calls and operate features normally. The Message Indication remains active until canceled by a Message Center operator or by the system during a night routine.

Placing a message retrieval call

SL-1 sets The user goes off hook and presses the MESSAGE WAITING key. The digit display shows the Message Center DN. The Message Center answers and gives the user the message, then extinguishes the user's Message Indication lamp. The user then goes on hook. The user can also access the Message Center by going off hook and pressing the MESSAGE WAITING key even if the associated lamp is not flashing.

If message indication is by AMW, the user goes off hook and dials the Message Center DN. The Message Center operator cancels the AMW in the same way as a Message Waiting lamp.

500/2500 Telephones Whether or not a message indication lamp is provided with the telephone, the user goes off hook and dials the Message Center DN. The Message Center answers and gives the user the message, then extinguishes the user's Message Indication lamp. If message indication was provided by interrupted dial tone, this is canceled by the Message Center operator in the same way as a Message Waiting lamp. The user then goes on hook.

Answering a message retrieval call

ACD Message Center

The message retrieval call is presented on the MSG IN-CALLS key of a Message Center SL-1 telephone, and the digit display shows the DN of the calling telephone. The MSG CANCEL lamp reflects the state of the caller's Message Waiting indication as follows:

- Steadily lit: The Message Waiting Indication at the calling telephone is inactive.
- Fast flashing (60 ipm): The Message Waiting Indication at the calling telephone is active.
- Slow flashing (30 ipm): The Message Waiting lamp at the calling telephone is either disabled or not equipped. This state does not occur if Message Waiting Indication is by interrupted dial tone.

To answer the call, the Message Center operator presses the MSG IN-CALLS key. If the Message Center is equipped with Call Forcing, the call is answered automatically. The operator gives the caller the message. If the MSG CANCEL lamp is flashing, the operator presses the MSG CANCEL key to deactivate the caller's Message Waiting Indication. The operator then presses the RLS key to release the call.

DN Message Center

The message retrieval call is presented on the MC DN key of a Message Center SL-1 telephone. The Message Center operator answers the call by pressing the MC DN key. The digit display shows the calling DN, and the MSG CANCEL lamp indicates the state of the calling telephone's message Waiting Indication in the same way as for an ACD-type Message Center. The procedures for deactivating Message Waiting Indication are the same as for an ACD Message Center.

Attendant Message Center

The presentation of a direct message call to an Attendant Console depends on whether a Phantom Message Center DN has been assigned to an ICI key (Phantom Message Center DN), or the user must dial the attendant as in a normal attendant call (Normal Attendant Access).

The Phantom Message Center ACD DN is assigned to overflow to the MSG CENTER ICI key on the Attendant Console. When a direct Message Center call comes into the console, the MSG CENTER ICI key flashes. To answer the call, the Message Center operator presses the MSG CENTER ICI key or a free LPK key. The procedures for deactivating a Message Waiting indicator are the same as for an ACD-type Message Center.

With Normal Attendant Access, the attendant must determine verbally that this is a message retrieval call. During the call, the MSG CANC key does not show the state of the user's Message Waiting lamp. After the call is released, the attendant must deactivate Message Waiting Indication directly.

Direct Message Waiting lamp control

The Message Center operator must directly access a telephone to activate or deactivate Message Waiting Indication in the following cases:

- if the telephone is calling an Attendant Message Center by direct access.
- if the telephone is not currently in contact with the Message Center.

The Message Center operator must first release or place on hold all calls. In an ACD-type Message Center, the NOT READY key must be activated. The operator then decides whether the telephone's Message Waiting Indication is to be activated or canceled.

Query and/or activate

The operator presses the MSG INDIC key, and the associated lamp lights. The operator then dials the DN. No Ringback is heard, but the state of the MSG INDIC lamp reflects the state of the user's Message Waiting lamp (or interrupted dial tone) as follows:

- Steadily lit: The user's Message Waiting Indication is inactive.
- Fast flashing (60 ipm): The user's Message Waiting Indication is active.
- Slow Flashing (30 ipm): The user's Message Waiting lamp is either disabled or not equipped. This state does not occur if Message Waiting Indication is by interrupted dial tone.

Here, the operator can change the state of the user's Message Waiting Indication from inactive to active with the MSG INDIC key. The connection is released when the Message Center operator uses the RLS key.

Query and/or deactivate

The operator presses the MSG CANC key, and the associated lamp lights. The operator then dials the DN. No Ringback is heard, but the state of the MSG CANC lamp reflects the state of the user's Message Waiting Indication in the same way as the MSG INDIC lamp previously described.

At this point, the operator can change the state of the user's Message Waiting Indication from active to inactive by pressing the MSG CANC key, or the indication can be left as it is. The connection is released when the Message Center operator presses the RLS key.

Network Message Service (NMS)

With X11 Release 15 and later, centralized Message Centers are now provided for all switches in ISDN PRA or ISL networks. Network Message Service (NMS) functions allow access to Message Centers (MC) across a network, while remaining transparent to the user. The application is referred to as the Network Message Service—Message Center (NMS-MC).

Three types of Message Centers are supported:

- ACD-type Message Centers
- DN-type Message Centers
- Attendant Console Message Centers

Feature requirements

The Network Message Service (NMS), package 175 requires the Message Center, package 46, for support.

NMS requires all the packages necessary to support the Integrated Services Digital Network (ISDN), with package 148 as a minimum.

Network Message Services in the Meridian Mail environment require the following packages:

- Originating switch
 - End to End Signaling (EES) (10)
- Terminating switch
 - Integrated Messaging System (IMS) (35)
 - End to End Signaling (EES) (10)
 - Command Status Link (CSL) (77)

Message Centers in the ACD environment require the ACD packaged options:

- Basic ACD (40)
- ACD package A (45)
- ACD package B (41)
- ACD package C (421)

The user network must be equipped with either the Uniform Dialing Plan (UDP) or the Coordinated Dialing Plan (CDP).

NMS does not support Public Numbering Plans or Multiple Message Center interworking.

Implementation

For a complete description of the steps to operate and implement Network Message Services, refer to *ISDN Primary Rate Interface administration*. Also refer to the *X11 Software input/output guide* for a complete description of the prompts and responses available.

Message Waiting Indication (MWI) Interworking

With X11 Release 19, centralized message services are now provided for a corporate network, consisting of Meridian 1 and Centrex (DMS-100) systems. This means that a user on a Meridian 1 system can directly access the voice message system on a DMS-100 and vice versa. MWI Interworking allows either one of the two configurations listed below:

- The Meridian 1 system hosts the Message Center and serves both Meridian 1 and DMS-100 users in the same customer group or corporate network.

This configuration enables DMS-100 private or public network callers to leave messages for subscribers on the Message Center connected to the Meridian 1 system. The Meridian Message Center then initiates a facility message to turn on the Message Waiting Indicator at the subscriber's station, located either on a Meridian 1 system or on a DMS-100 system within the same customer group. The subscriber can then retrieve the messages, and the Message Waiting Indicators will automatically turn off (accomplished via a facility message initiated from the host switch to the remote switch where the subscriber resides) when retrieval is complete.

- The DMS-100 system hosts the Message Center and serves both Meridian and DMS-100 users in the same customer group.

This configuration enables Meridian private or public network callers to leave messages for subscribers on the Message Center connected to the DMS-100 system. This configuration then functions in the same way as the Meridian 1 system host configuration.

Note: These configurations enable one or more Meridian and one or more DMS-100 customer locations to be connected directly or in tandem through Meridian 1 or DMS-100 systems to the Meridian 1 or DMS-100 directly supporting the Message Center. The connections between the switches must be ISDN.

Feature requirements

MWI Interworking requires the following for each node:

- Originating node (the node that has Message Center users)
 - NMS package 175
 - ISDN Signaling package 145
 - ISDN Primary Rate Access package 146 or ISDN Signaling Link package 147
 - ISDN Network Service package 148
 - MWC package 46
 - EES package 10
 - MWI package 219 (if connected to a DMS-100, SL-100, or DMS-250 switch)

Note: DMS-100 and SL-100 must run with BCS 36 or above loaded.

- Host node (the node that hosts the Message Center)
 - NMS package 175
 - IMS package 35
 - ISDN/AP package 77
 - BACD package 40
 - ACDA package 45
 - ISDN Signaling package 145
 - ISDN Primary Rate Access package 146 or ISDN Signaling Link package 147
 - ISDN Network Service package 148
 - MWC package 46
 - EES package 10
 - MWI package 219 (if connected to a DMS-100, SL-100, or DMS-250 switch)
 - Release 19 software

- Tandem node(s) (the node[s] that do not have Message Center users)
 - ISDN Signaling package 145
 - ISDN Primary Rate Access package 146 or ISDN Signaling Link package 147
 - ISDN Network Services package 148
 - MWI package 219 (if connected to a DMS-100, SL-100, or DMS-250 switch)

Note: The Meridian Message Center supports a private network and must be equipped with either the Uniform Dialing Plan (UDP) or the Coordinated Dialing Plan (CDP). The DMS-100 supports both a public and private Message Center and can be equipped with a third-party Message Center vendor, such as OCTEL.

For detailed information on this feature, refer to *ISDN Primary Rate Interface description and administration*.